

CLAIMS

We claim:

1. A barbecue grill assembly comprising:
 - a cooking chamber;
 - a gas burner positioned in a lower portion of the cooking chamber;
 - 5 a cooking grate removably positioned in the cooking chamber and adjacent the gas burner, the cooking grate having a cooking surface made of upper surfaces of a plurality of cooking members to define an upper cooking plane, and a lower surface, the cooking grate further having a solid energy receptor portion positioned in close proximity to the burner, a plurality of the cooking members depending from the energy receptor portion, and a plurality of openings between the cooking members, wherein no openings extend through the solid energy receptor portion, and wherein the solid energy receptor portion is positioned directly above the gas burner such that no structure is located between the gas burner and the solid energy receptor portion of the cooking grate.
- 10 2. The barbecue grill of claim 1, wherein the cooking grate has a mass, and wherein a substantial portion of the mass of the cooking grate resides in the solid energy receptor portion of the cooking grate.
- 15 3. The barbecue grill assembly of claim 1, wherein the solid energy receptor portion has a thickness extending from the lower surface to a distance below the cooking surface.
- 20 4. The barbecue grill assembly of claim 1, wherein the energy receptor portion has a sloped grease control structure configured on an upper surface of the energy receptor portion.
- 25 5. The barbecue grill assembly of claim 4, wherein an apex of the grease control structure is located below the cooking surface of the cooking grate.
6. The barbecue grill assembly of claim 1, further comprising an upper grease control structure and a lower grease control structure, the upper grease control structure comprising a plurality of ribs having at least one inclined surface extending downward toward the lower surface of the cooking grate, and the lower grease control structure comprising a ridge depending from the lower surface.
- 30 7. The barbecue grill assembly of claim 6, wherein the lower grease control structure is positioned on the cooking grate and past an extent of the gas burner below the cooking grate to prevent grease from draining onto the burner flame region of the gas burner.

8. The barbecue grill assembly of claim 1, wherein the cooking grate further comprises an intermediate plane defined by a surface intermediate the cooking surface and the lower surface.

5 9. The barbecue grill assembly of claim 8, wherein the cooking grate has a mass, and wherein a substantial portion of the mass of the cooking grate is located between the intermediate plane and the lower surface.

10 10. The barbecue grill assembly of claim 9, wherein the mass of the cooking grate located between the intermediate plane and the lower surface, and the mass of the cooking grate located in the solid energy receptor portion of the cooking grate is over 65% of the mass of the cooking grate.

15 11. A gas barbecue grill assembly comprising:
a cooking chamber;
a gas burner positioned in a lower portion of the cooking chamber;
a cooking grate removably positioned in an upper portion of the cooking chamber and adjacent the gas burner, the cooking grate having an upper cooking plane defined by a cooking surface of a plurality of cooking members, and a lower energy receptor plane defined by an energy receptor surface, wherein a plurality of openings are provided between the cooking members, wherein the lower energy receptor plane of the cooking grate is positioned in close proximity to the burner such that a portion of the energy receptor surface has direct exposure to a flame extending from the burner.

20 12. The barbecue grill of claim 11, wherein the distance between the lower surface of the solid energy receptor portion of the cooking grate and the gas burner is less than 3 inches.

25 13. The barbecue grill assembly of claim 11, wherein the cooking grate is positioned directly above the gas burner such that no structure is located between the cooking grate and the gas burner.

30 14. The barbecue grill assembly of claim 11, wherein the cooking grate further comprises a solid energy receptor portion, the plurality of grid-like cooking members depending from the energy receptor portion, wherein none of the openings extend through the solid energy receptor portion, wherein the solid energy receptor portion receives energy directly from the gas burner, and wherein energy is conducted from the energy receptor portion to the cooking members for cooking food thereon.

15. The barbecue grill assembly of claim 14, wherein the cooking grate is positioned directly above the gas burner such that no structure is located between the energy receptor portion of the cooking grate and the gas burner.

5 16. The barbecue grill assembly of claim 11, wherein the cooking grate has a mass, and wherein a substantial portion of the mass of the cooking grate is located adjacent the energy receptor surface of the cooking grate.

17. The barbecue grill assembly of claim 14, wherein the mass of the energy receptor portion of the cooking grate is greater than the mass of the cooking members.

10 18. The barbecue grill assembly of claim 14, wherein the cooking grate has a mass, and wherein a substantial portion of the mass of the cooking grate is located in the energy receptor portion of the cooking grate.

19. The barbecue grill assembly of claim 18, wherein the energy receptor portion of the cooking grate provides over 30% of the mass of the cooking grate.

15 20. The barbecue grill assembly of claim 11, wherein the openings have a surface area, and wherein the sum of the surface areas of all of the openings is approximately 30% of a total surface area of the grate.

20 21. The barbecue grill assembly of claim 14, wherein the energy receptor surface of the cooking grate receives radiant and convective energy from the gas burner, wherein the energy is distributed through the energy receptor portion, and wherein conductive energy is transferred from the energy receptor portion of the cooking grate to the cooking members of the cooking grate.

22. The barbecue grill assembly of claim 14, wherein the energy receptor portion has a sloped grease control structure configured on an upper surface of the energy receptor portion.

25 23. The barbecue grill assembly of claim 22, wherein an apex of the grease control structure is located below the cooking surface of the cooking grate.

24. The barbecue grill assembly of claim 23, further comprising an upper grease control structure and a lower grease control structure, the upper grease control structure comprising a plurality of ribs having at least one inclined surface extending downward toward the lower portion of the cooking chamber, and the lower grease control structure comprising a ridge depending from the lower surface.

30 25. The barbecue grill assembly of claim 21, wherein the lower grease control structure is positioned on the cooking grate to prevent grease from draining into the burner flame region.

26. The barbecue grill of claim 14, wherein the openings allow a portion of the convective energy emitted from the gas burner to pass through the cooking grate and into an upper portion of the cooking chamber.

27. A barbecue grill assembly having a cooking chamber, and a gas burner having a plurality of burner openings, comprising:

5 a cooking grate removably positioned in an upper portion of the cooking chamber and adjacent the gas burner, the cooking grate having an upper cooking plane defined by an upper cooking surface, a lower receptor plane defined by a lower energy receptor surface, a solid energy receptor portion positioned directly above the gas burner, a plurality of grid-like cooking members depending from the energy receptor portion, and a plurality of openings between the cooking members, the openings being dimensioned such that no burner openings are directly below any portion of openings, wherein the lower plane of the cooking grate is positioned in close proximity to the burner, and wherein the solid energy receptor portion has no openings therein, the solid energy receptor portion having direct exposure to a burner flame region 10 extending from the burner to receive energy directly from the gas burner and to allow for energy to be conducted through the solid energy receptor portion and to the cooking members for cooking food thereon, and wherein an upper surface of the energy receptor portion has a sloped 15 grease control structure to direct grease through the openings and away from the burner openings.

20 28. The barbecue grill assembly of claim 27, wherein an apex of the grease control structure is located below the cooking surface of the cooking grate.

29. The barbecue grill assembly of claim 27, wherein the upper grease control structure comprises a plurality of ribs having at least one inclined surface extending downward toward the lower portion of the cooking chamber.

25 30. The barbecue grill assembly of claim 27, further comprising a lower grease control structure comprising a ridge depending from the lower energy receptor surface.

31. The barbecue grill assembly of claim 30, wherein the lower grease control structure is positioned on the cooking grate and past an extent of the gas burner below the cooking grate to prevent grease from draining onto the burner flame region of the gas burner.